

Improvements relating to metallic conduits for electric conductors

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Abstract

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PATENT SPECIFICATION



Application Date: Jan. 24, 1939. No. 2388/39.

518,208

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PROVISIONAL SPECIFICATION

Improvements relating to Metallic Conduits for Electric Conductors

I, JOHN MICHAEL HOLLANDER, British Subject, of 381, Hagley Road, Edgbaston, Birmingham, 17, do hereby declare the nature of this invention to be as follows:—

This invention relates to metallic conduits or casings for enclosing cables of electric power distribution systems, and has more particular reference to such conduits or casings, known as trunkings, of the kind described in the Specification of my Patent Application No. 25202/38, (Serial No. 517,209) and comprising a square or other suitably sectioned main or body part provided at one side, or at the front, with a detachable cover plate.

The object of the present invention is to provide improved and simplified means whereby a length or section of conduit or trunking, with its cover plate, may be readily joined to an adjacent section, or to an adjacent junction-box. A further object is to provide a junction-box of an improved construction for connecting two or more of the conduit or trunking sections together.

According to the invention a conduit or trunking section is provided at one or both ends with a flanged U-shaped attachment collar or yoke adapted to be attached, by bolts or other means, to a flange or flanges of an adjacent section, or of an adjacent junction-box, the ends of the collar or yoke, adjacent the open side of the conduit or trunking having attachment lugs or parts adapted to receive bars or co-operating attachment parts on the cover plate of the conduit or trunking. The said cover plate may have a flange for attachment to a flange on a cover plate of an adjacent conduit or trunking section or of an adjacent junction-box.

Also, according to the invention, a junction-box for use with flanged trunking or conduit sections having flanged detachable cover plates is provided comprising a hollow body part apertured at two or more sides, and provided with a detachable cover plate, both the cover plate and the body part of the junction box being provided with flanges adapted to seat themselves against the flanges of the cover and of the body of the adjacent trunking or

conduit section or sections. The junction-box may comprise a hollow flanged body part of an elbow form or square shape, having apertures separated by a corner post, the latter having flat faces which serve, with the flanges, to form seatings for the flanges of the conduit or trunking section to which the junction-box is to be attached.

Thus, in carrying out the invention, as described in connection with a pair of trunking or conduit sections of the construction described in my above mentioned Patent Specification, but disposed at right-angles to one another and attached to an elbow-shaped junction-box, both the trunking or conduit sections and the junction-box are flanged and are provided with flanged detachable cover plates, the flanges of the body and cover plate of the trunking sections being adapted to be bolted to the flange of the body and cover plate of the junction-box. Each trunking section is of a channel section, with open ends and with an open front into or over which the detachable cover plate is adapted to be fitted, whilst welded, brazed, riveted or otherwise secured upon the end of each section is a U-shaped collar or yoke embracing the three sides of the trunking, with the ends of the yoke terminating flush with the open front of the trunking. Each collar or yoke is of angle-section with a flange at its outer edge flush with the end of the trunking, whilst the free end of each side branch of the collar or yoke is extended laterally to form an outwardly-projecting lug at right-angles to the said branch and flush with the open front of the trunking section. The cover plate of the latter has transverse angle-sectioned bars welded, brazed, riveted or otherwise secured thereto, the said bars having flanges which are flush with the extremities of the cover plate, and extending over the longitudinal edges of the latter to lie over the lateral lugs of the body collars to which they are bolted. The elbow-shaped junction-box between the two trunking sections is of a hollow box construction comprising a quadrant-shaped back plate with a curved forwardly-ex-

tending wall, and provided opposite the latter at the corner with a forwardly-projecting pillar of a substantially triangular section, and having two flat faces at right-angles to one another. The two straight side edges of the curved wall are formed with integral outwardly-projecting flanges, whilst the straight edges of the back plate are formed with integral rearwardly-projecting flanges which join the first mentioned flanges. Two U-shaped apertures, separated by the corner pillar, are thus provided, each aperture being bounded by flanges at two of its edges and being bounded at its remaining edge by a flat face of the corner pillar, the said face of the latter and the outer faces of the two flanges lying in the same plane. The forward ends of the flanges at the straight side edges of the curved wall of the junction-box are formed with integral lugs disposed at right-angles and lying flush with the front edge of the said wall, level with the forward end of the corner pillar, which is flat. The front of the junction-box, thus formed, is fitted with a detachable quadrant-shaped cover plate with forwardly-projecting flanges at its two straight edges. The said cover plate is attached by three screws passing through holes in the corners of the plate and engaging tapped holes in the lugs on the body of the junction-box and in the end of the corner pillar, the flanges of the cover plate lying in the plane of the adjacent flanges of the body part, and bridging the apertures.

The flanges of the body portions of the trunking sections are applied against the flanges of the body of the junction-box and against the flat faces of the corner pillar and they are secured thereto in a simple and efficient manner by screws and bolts. The flanges on the cover of the junction-box may then be secured by bolts to the flanges of the transverse bars of the cover plates of the trunking sections.

If desired, the trunking sections may be connected to a junction-box of a square or rectangular shape in substantially the same way, and the junction-box may have provision for the attachment of two, three, or four trunking sections at right-angles to one another. Thus, the junction box comprises, in this case, a square or

rectangular back plate having an integral forwardly-projecting pillar of a triangular section, with flat outer faces, at each corner, the said back plate being surrounded by integral rearwardly-projecting flanges. The ends of the corner pillars are flat and lie in the same plane, whilst attached to the said ends by screws is a removable square or rectangular cover provided with outwardly-projecting flanges along its four edges, the said flanges being joined together at their ends. When the cover is attached a hollow box-like structure is provided having four square apertures any of which may be closed by a metal plate according to the number of trunking sections to be attached to the junction-box. Thus, where the latter is to be used with two trunking sections at right-angles to one another two of the apertures are closed by plates, secured by screws or bolts to the faces of the corner pillars and to the flanges of the back plate and cover, leaving two adjacent apertures open for communication with the trunking sections. To attach each trunking section the flanges of the U-shaped yoke are applied against the flat faces of the corner pillars of the junction-box and against the flange of the back plate, and are secured to the said pillars and flange by bolts or screws. The flange on the adjacent cross-bar of the trunking cover plate is then bolted to the flange of the junction-box cover plate. If three trunking sections are to be attached one of the cover plates is removed from the junction-box, whilst for the attachment of four trunking sections both plates are removed, the trunking sections, which are attached to the junction-box in the manner described, radiating from the junction-box and being disposed at right-angles to one another.

A junction-box of any other suitable construction may be provided, with flanges or corner posts for receiving and attaching to the flanges on the trunking sections, and it may be formed with five, six, or any other number of apertures for the cables.

Dated this 23rd day of January, 1939.
H. N. & W. S. SKERRETT,
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Agents for the Applicant.

COMPLETE SPECIFICATION

Improvements relating to Metallic Conduits for Electric Conductors

I, JOHN MICHAEL HOLLANDER, British Subject, of 381, Hagley Road, Edgbaston, Birmingham 17, do hereby declare the

nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained

in and by the following statement:—
described and ascertained in and by the
following statement:—

This invention relates to metallic con-
duits or casings for enclosing cables of
electric power distribution systems, and
has more particular reference to such con-
duits or casings known as trunkings, of
the kind comprising a square or other
suitably sectioned main or body part pro-
vided at one side, or at the front, with a
detachable cover plate.

The principal object of the present in-
vention is to provide an improved con-
struction of conduit or trunking, having
junction boxes between different lengths
or sections, wherein the entire length of
the conduit, including the junction boxes,
can be opened to present a completely
open trough or duct system in order to
facilitate the laying of or to give easy
access to the cables.

A further object is to provide a junc-
tion-box of an improved construction for
connecting two or more of the conduit or
trunking sections together.

It has been proposed to provide a chan-
nel-sectioned conduit with a hinged cover
plate the ends of the body part and of the
cover plate having flanges attached by
bolts to flanges on the ends of a junction-
box interposed between two straight con-
duit sections, but in this proposal the
cover-plate was not attached to a remov-
able cover-plate or part of the junction-
box to admit of a completely open trough
or duct system being obtained.

According to the invention, a metallic
conduit or trunking for electric conductors
comprises separate open-sided channel
body sections and an intermediate junc-
tion-box, said body sections being pro-
vided with end flanges and with detach-
able cover plates having end flanges, and
the junction-box having at the ends or
sides of its body part flanges or parts
bolted or attached to the end flanges of
the adjacent body sections and also hav-
ing a detachable cover plate or other de-
tachably part provided with flanges or sur-
faces to which the end flanges of the
cover-plates of adjacent channel sections
are bolted or attached, admitting of a com-
pletely open trough or duct system being
obtained.

A junction-box for use in the metallic
conduit or trunking may comprise a
hollow body part, apertured at two or more
sides, and provided with a detachable
cover-plate, both the cover-plate and the
body part of the junction box being pro-
vided with flanges adapted to seat them-
selves against the flanges of the cover and
of the body of the adjacent trunking or
conduit section or sections. The junction-

box may comprise a hollow flanged body
part of an elbow form or square shape,
having apertures separated by a corner
post, the latter having flat faces which
serve, with the flanges, to form seatings
for the flanges of the conduit or trunking
sections to which the junction-box is to be
attached.

The junction-box may be of open-
fronted elbow form, comprising a back
plate carrying a curved forwardly-extend-
ing wall and a forwardly-extending corner
pillar, the back-plate and curved wall
having outwardly-extending flanges for
bolting to the flanges of adjacent trunking
sections, and the corner pillar being also
adapted to have said trunking flanges
secured to it. Or, the junction-box may
be of square form, comprising a back plate
carrying four forwardly-extending corner
pillars and having rearwardly-extending
flanges, the flanges of adjacent trunking
sections being secured to said corner
pillars and flanges, and a cover-plate being
secured to the front ends of the corner
pillars, said cover-plate having flanges for
attachment to the end flanges of the cover-
plate on adjacent trunking sections.

The junction-box may have flanges
bolted or attached to the flanges of adja-
cent trunking sections and also a loose
corner pillar adapted to be secured to the
flanges of the cover-plates of adjacent sec-
tions, said junction-box having a detach-
able flanged cover adapted to be secured to
adjacent sections.

Figure 1 of the accompanying drawings
shows, in elevation, two trunking sections,
joined through the medium of a corner
junction box according to the invention.

Figure 2 is a plan.

Figure 3 is a vertical section.

Figure 4 is a horizontal section.

Figure 5 represents a cross-section on
line V—V, Figure 1.

Figure 6 is a perspective view of the
corner junction box and its cover plate.

Figure 7 is a front elevation of a num-
ber of trunking sections connected to-
gether through the medium of a square
junction box, the front plate of the latter
being shown as partly broken away.

Figure 8 is a plan view of this form of
the invention.

Figure 9 is a vertical longitudinal sec-
tion.

Figure 10 represents a horizontal longi-
tudinal section.

Figure 11 is a cross-section on line XI—
XI, Figure 7.

Figure 12 is a perspective view of the
junction box and its cover.

Figure 13 represents a horizontal sec-
tional view showing how two sections may
be joined in a horizontal plane according

to the invention.

Figure 14 is a perspective view of the junction box employed in this modification, and of its cover plate.

Referring to Figures 1 to 6 of the said drawings, a horizontal trunking section is coupled to a vertical section through the medium of an elbow junction box 16. Each trunking section 1 as shown in the drawings may be constructed as described and claimed in my Specification No. 25202/38. Thus each section is of a channel section, with open ends and with an open front into or over which the detachable cover plate 2 is adapted to be fitted, whilst welded, brazed, riveted or otherwise secured upon the end of each section is a U-shaped collar or yoke 6 embracing the three sides of the trunking, with the ends of the yoke terminating flush with the open front of the trunking. Each collar or yoke 6 is of angle-section with a flange 7 at its outer edge flush with the end of the trunking, whilst the free end of each side branch of the collar or yoke is extended laterally to form an outwardly-projecting lug 8 at right-angles to the said branch and flush with the open front of the trunking section. The cover plate 2 of the latter has a transverse angle-sectioned bar 10 welded, brazed, riveted or otherwise secured thereto, the said bar having a flange 11 which is flush with the extremity of the cover plate and the ends of the bar extending over the longitudinal edges of the said cover plate to lie over the lateral lugs 8 of the body collars, to which they are bolted, by bolts 12. The elbow-shaped junction-box 16 between the two trunking sections is of a hollow box construction comprising a quadrant-shaped back plate with a curved forwardly-extending wall, and provided opposite the latter, at the corner, with a forwardly-projecting pillar 17 of a substantially triangular section, and having two flat faces at right-angles to one another. The two straight side edges of the curved wall are formed with integral outwardly-projecting flanges 18, 18, whilst the straight edges of the back plate are formed with integral rearwardly-projecting flanges 19, 19, which join the first mentioned flanges. Two U-shaped apertures, separated by the corner pillar, are thus provided, each aperture being bounded by flanges 18, 19, at two of its edges and being bounded at its remaining edge by a flat face of the corner pillar 17, the said face of the latter and the outer faces of the two flanges lying in the same plane. The forward ends of the flanges 18, 18, at the straight side edges of the curved wall of the junction-box are formed with integral lugs 20, 20, disposed at right-angles and lying flush with the

front edge of the said wall, level with the forward end of the corner pillar 17, which is flat. The front of the junction-box, thus formed, is fitted with a detachable quadrant-shaped cover plate 21 with forwardly-projecting flanges 22, 22, at its two straight edges. The said cover plate is attached by two bolts 23, 23, passing through holes in the outer corners of the plate and in the lugs 20 on the body of the junction-box, and by a screw 24 passing through the inner corner of the plate into the end of the corner pillar 17, the flanges 22 of the cover plate lying in the planes of the adjacent flanges 18 of the body part, and bridging the apertures.

The flanges 7 of the body portions of the trunking sections are applied against the flanges 18, 19, of the body of the junction-box and against the flat faces of the corner pillar 17 and they are secured thereto in a simple and efficient manner by screws and bolts 9, 25. The flanges 22 on the cover 21 of the junction-box may then be secured by bolts 13 to the flanges 11 of the transverse bars 10 on the cover plates 2 of the trunking sections.

If desired, the trunking sections may be connected to a junction-box of a square or rectangular shape in substantially the same way, and the junction-box may have provision for the attachment of two, three, or four trunking sections at right-angles to one another. Thus, as shown in Figures 7 to 12, the junction-box 26 comprises, in this case, a square or rectangular back plate having an integral forwardly-projecting pillar 27, of a triangular section, with flat outer faces, at each corner, the said back plate being surrounded by integral rearwardly-projecting flanges 28 (Figures 10 and 11). The ends of the corner pillars 27 are flat and lie in the same plane, whilst attached to the said ends by screws 29 is a removable square or rectangular cover 30 provided with outwardly-projecting flanges 31 along its four edges, the said flanges being joined at their ends. When the cover 30 is attached, a hollow box-like structure is provided having four square apertures any of which may be closed by a metal plate, such as a top plate 32, according to the number of trunking sections to be attached to the junction-box. Thus, where the latter is to be used with three trunking sections at right-angles to one another one of the apertures is closed by the plate 32, secured by screws or bolts 33 to the faces of the corner pillars 27 and to the flanges 28, 31, of the back plate and cover, leaving three adjacent apertures open for communication with the trunking sections 1. To attach each trunking section the flanges 7 of the U-shaped yoke 6 are applied

against the flat faces of the corner pillars 27 of the junction-box and against the flange 28 of the back plate, and are secured to the said pillars and flange by bolts or screws 25, 9. The flange 11 on the adjacent cross-bar 10 of the trunking cover plate 2 is then bolted to the flange 31 of the junction-box cover plate 30, at 13. If two trunking sections are to be attached an extra cover plate 32 is attached to one open side of the junction-box, whilst for the attachment of four trunking sections the plate 32 is removed, the trunking sections, which are attached to the junction-box in the manner described, radiating from the junction-box and being disposed at right-angles to one another.

When two horizontal trunking sections are to be connected at right-angles, the arrangement shown in Figures 13 and 14 may be adopted. The sections 1, 1, provided with front cover plates 2 and angle-sectioned end yokes 6, are coupled together by an elbow junction box 16, similar to that shown in Figures 1 to 6, having a top cover plate 21, but the corner pillar 17^a, instead of being fixed, is a loose piece. It is attached by bolts to the flanged bars 10 on the trunking cover plates 2. The trunking sections 1 are bolted to the flanges 18, 19, of the junction box and to the flanges 22 of the box cover 21, and when the plates 2 have been fixed to the ends of yokes 6, the pillar 17^a is secured by screws to the said cover 21 and to the bottom of the box.

I make no claim herein to anything claimed in my Specification No. 25202/38 (Serial No. 517,209).

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A metallic conduit or trunking for electric conductors comprising separate open-sided channel body sections and an intermediate junction-box, said body sections being provided with end flanges and with detachable cover plates having end flanges, and the junction-box having at the ends or sides of its body part flanges or parts bolted or attached to the end flanges of the adjacent body sections and also having a detachable cover plate or other detachable part provided with flanges or surfaces to which the end flanges of the cover-plates of adjacent channel sections are bolted or attached, admitting of a completely open trough or duct system

being obtained.

2. A junction-box for use in a metallic conduit or trunking as claimed in Claim 1, comprising a hollow body part, apertured at two or more sides, and provided with a detachable cover-plate, both the cover-plate and the body part of the junction-box being provided with flanges adapted to seat themselves against the flanges of the cover and of the body of the adjacent trunking or conduit sections.

3. A junction-box as claimed in Claim 2, comprising a hollow flanged body part of elbow form or square shape, having apertures separated by a corner post, the latter having flat faces which serve, with the flanges, to form seatings for the flanges of the conduit or trunking sections to which the junction-box is to be attached.

4. A junction-box as claimed in Claim 2 or 3, being of open-fronted elbow form comprising a back plate carrying a curved forwardly-extending wall and a forwardly-extending corner pillar, the back plate and curved wall having outwardly-extending flanges for bolting to the flanges of adjacent trunking sections, and the corner pillar being also adapted to have said trunking flanges secured to it.

5. A junction-box as claimed in Claim 2 or 3, being of square form, comprising a back plate carrying four forwardly-extending corner pillars and having rearwardly-extending flanges, the flanges of adjacent trunking sections being secured to said corner pillars and flanges, and a cover-plate being secured to the front ends of the corner pillars, said cover-plate having flanges for attachment to the end flanges of the cover-plates on adjacent trunking sections.

6. A junction-box as claimed in Claim 2 or 3, having flanges bolted or attached to the flanges of adjacent trunking sections and also having a loose corner pillar adapted to be secured to the flanges of the cover-plates of adjacent sections, said junction-box having a detachable flanged cover adapted to be secured to adjacent sections.

7. A metallic trunking or conduit for electric conductors substantially as herein described with reference to Figures 1 to 6, Figures 7 to 12, or Figures 13 and 14 of the accompanying drawings.

Dated this 24th day of October, 1939.

H. N. & W. S. SKERRETT,
24, Temple Row, Birmingham, 2, and
88—90, Chancery Lane, London, W.C.2,
Agents for Applicant.

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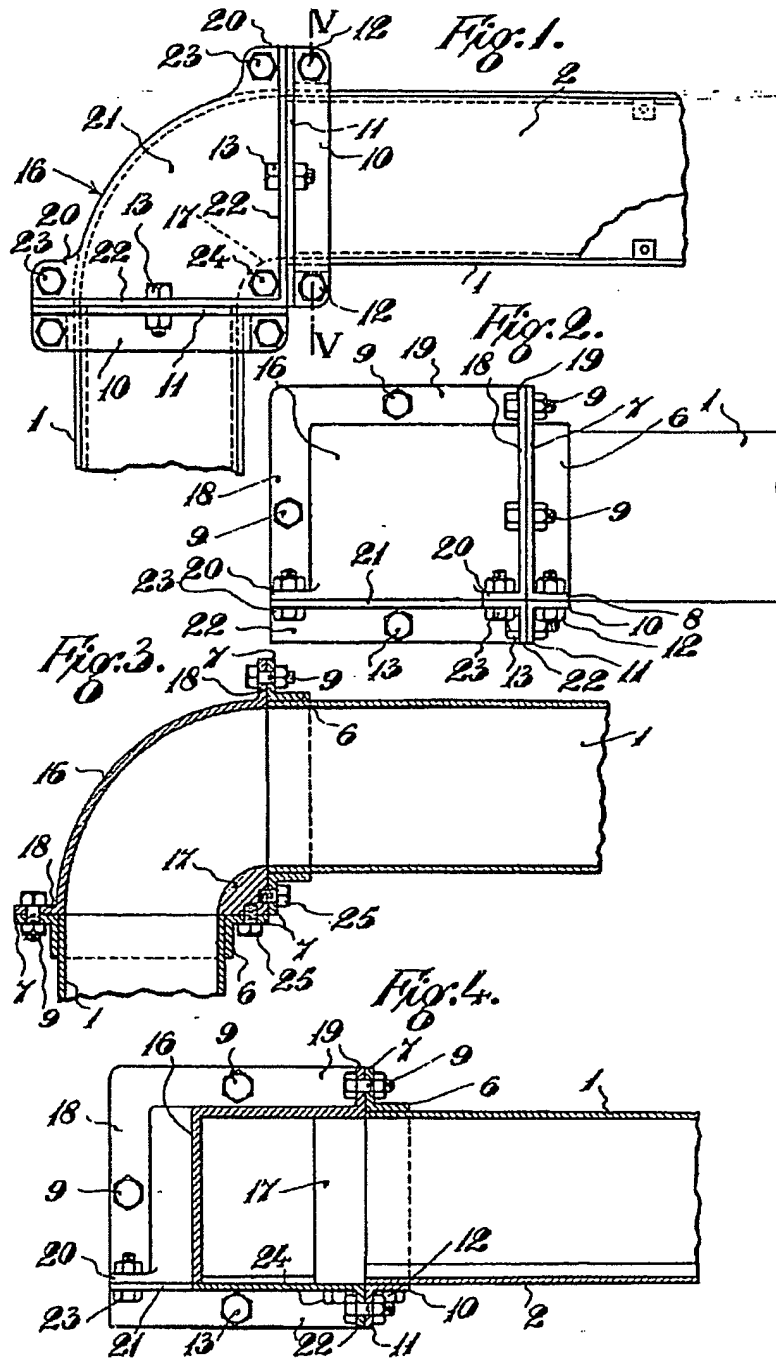


Fig. 5.

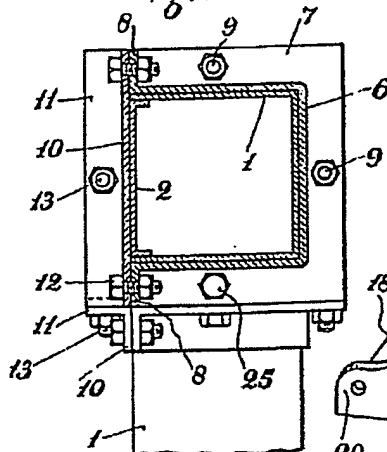


Fig. 6.

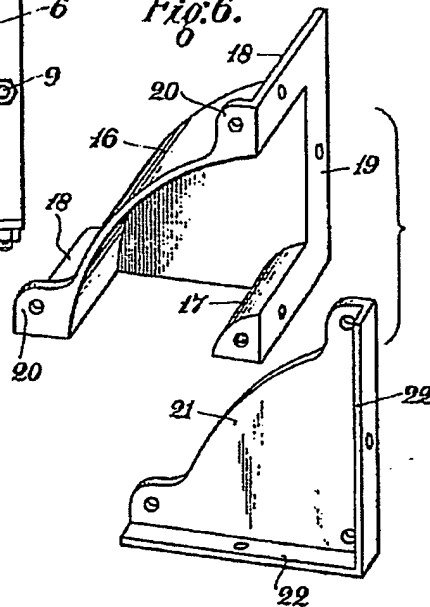
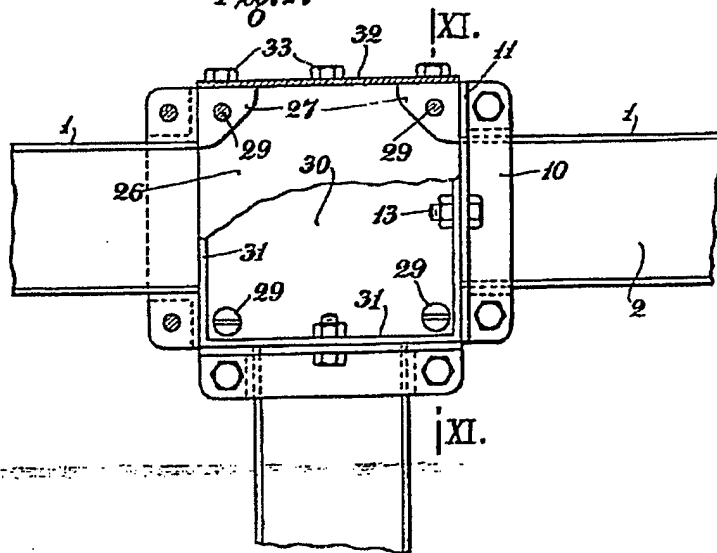
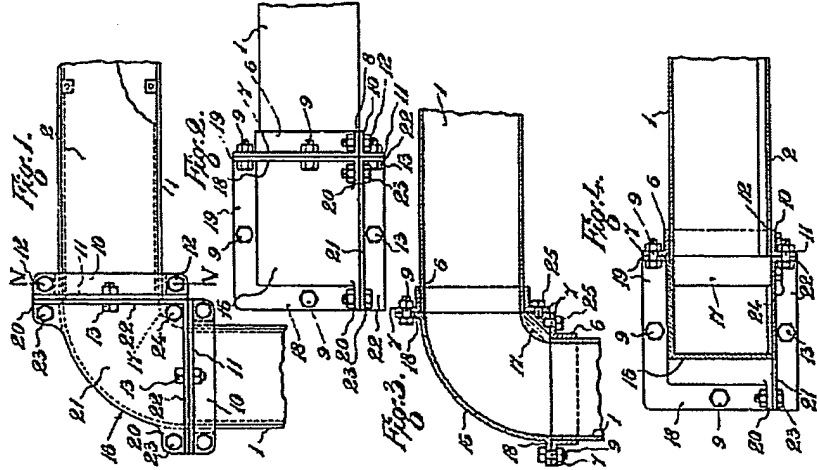


Fig. 7.





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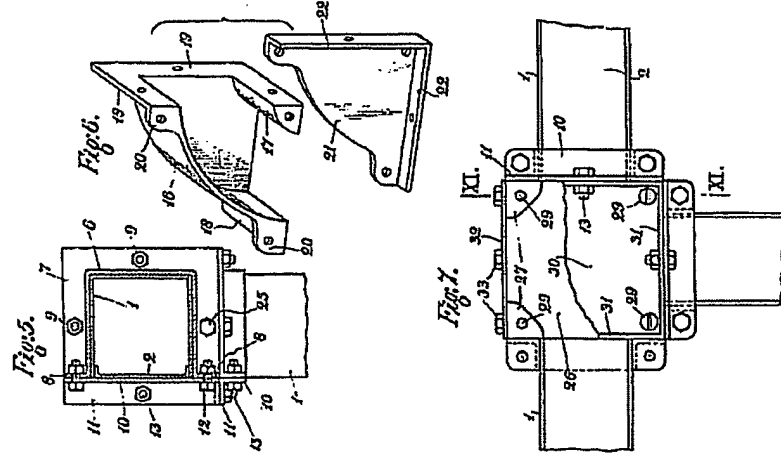


Fig. 8.

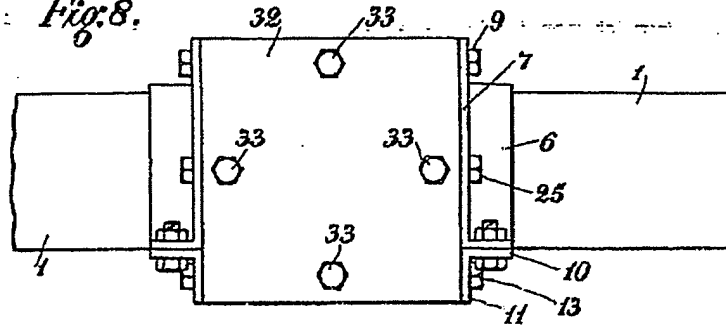


Fig. 9.

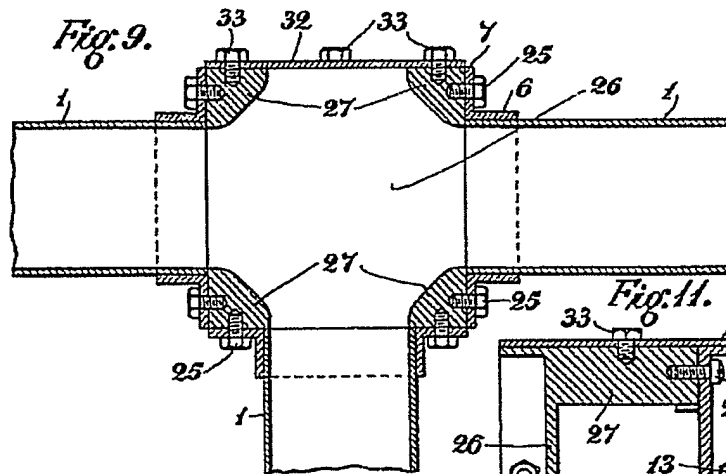


Fig. 10.

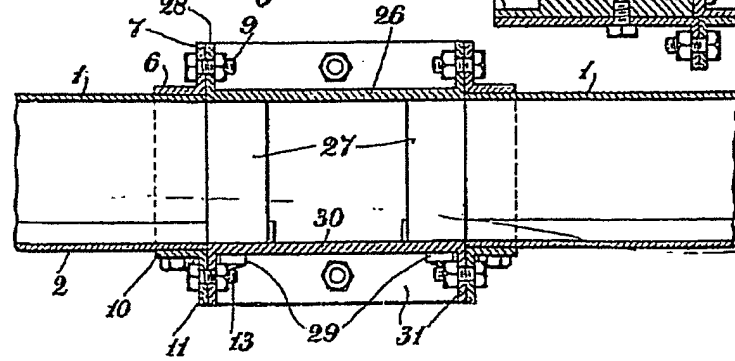
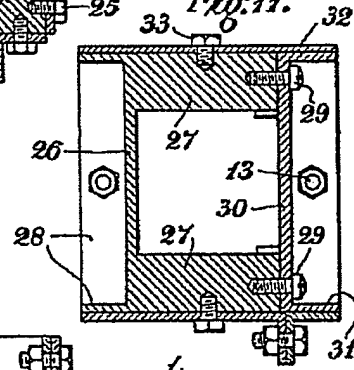


Fig. 11.



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Fig. 12.

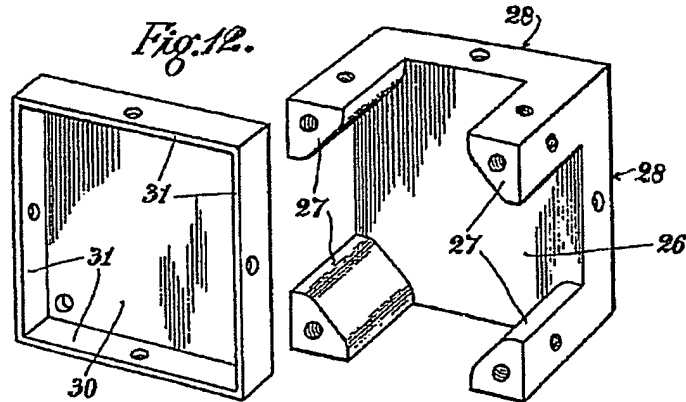


Fig. 13.

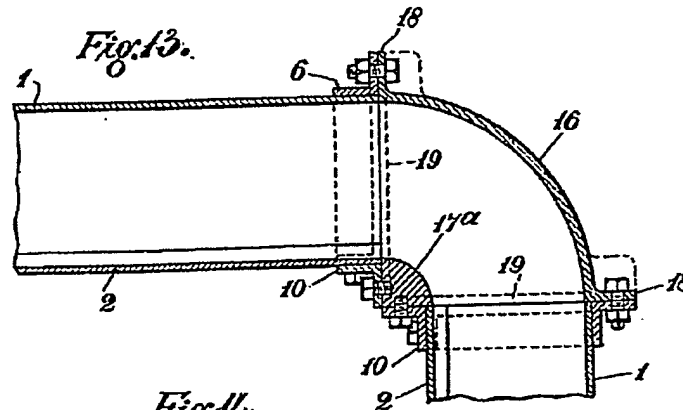
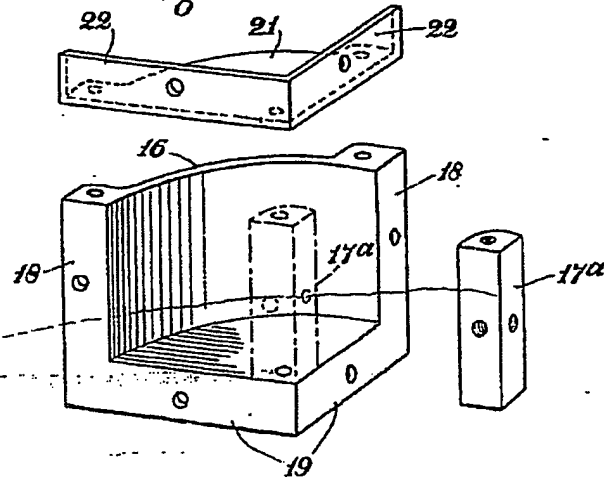


Fig. 14.



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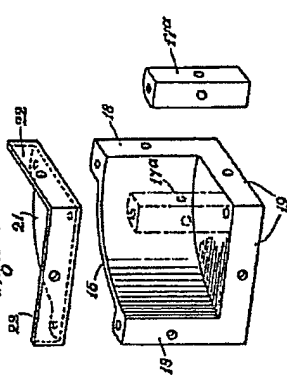
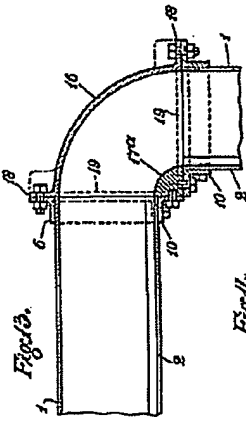
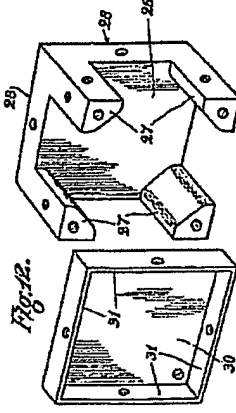
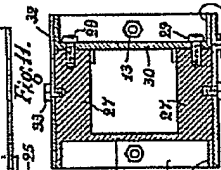
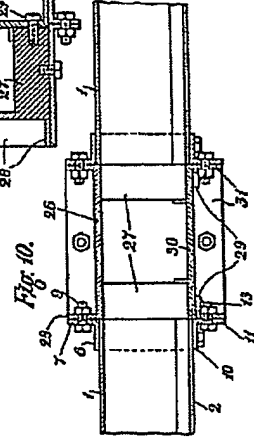
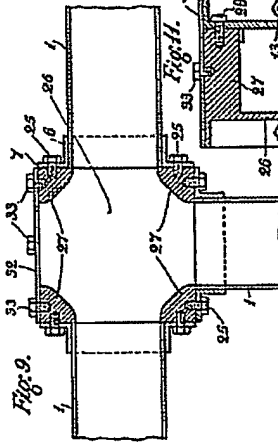
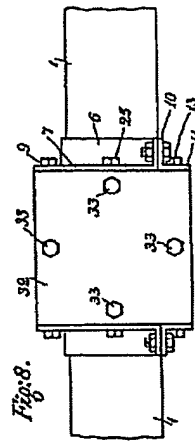
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